

FIG. 1

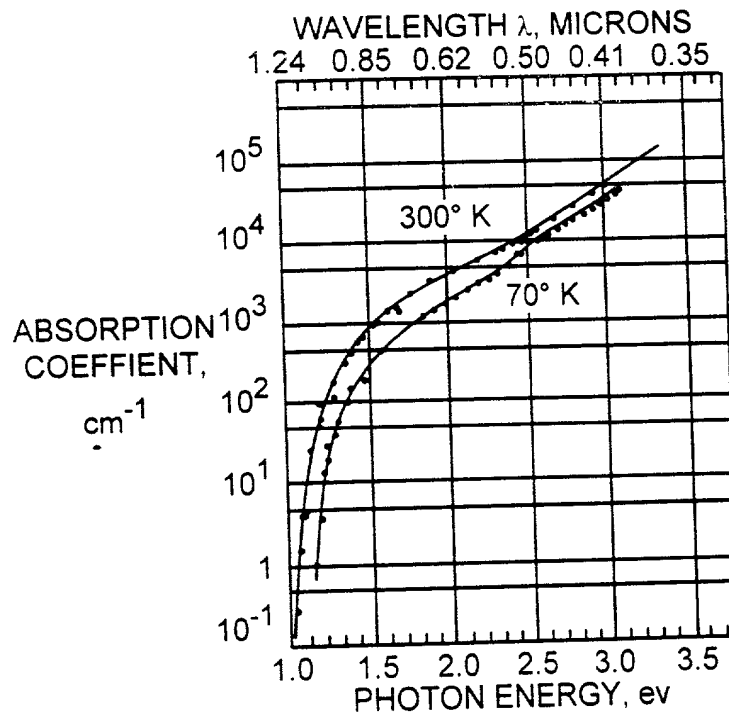


FIG. 2

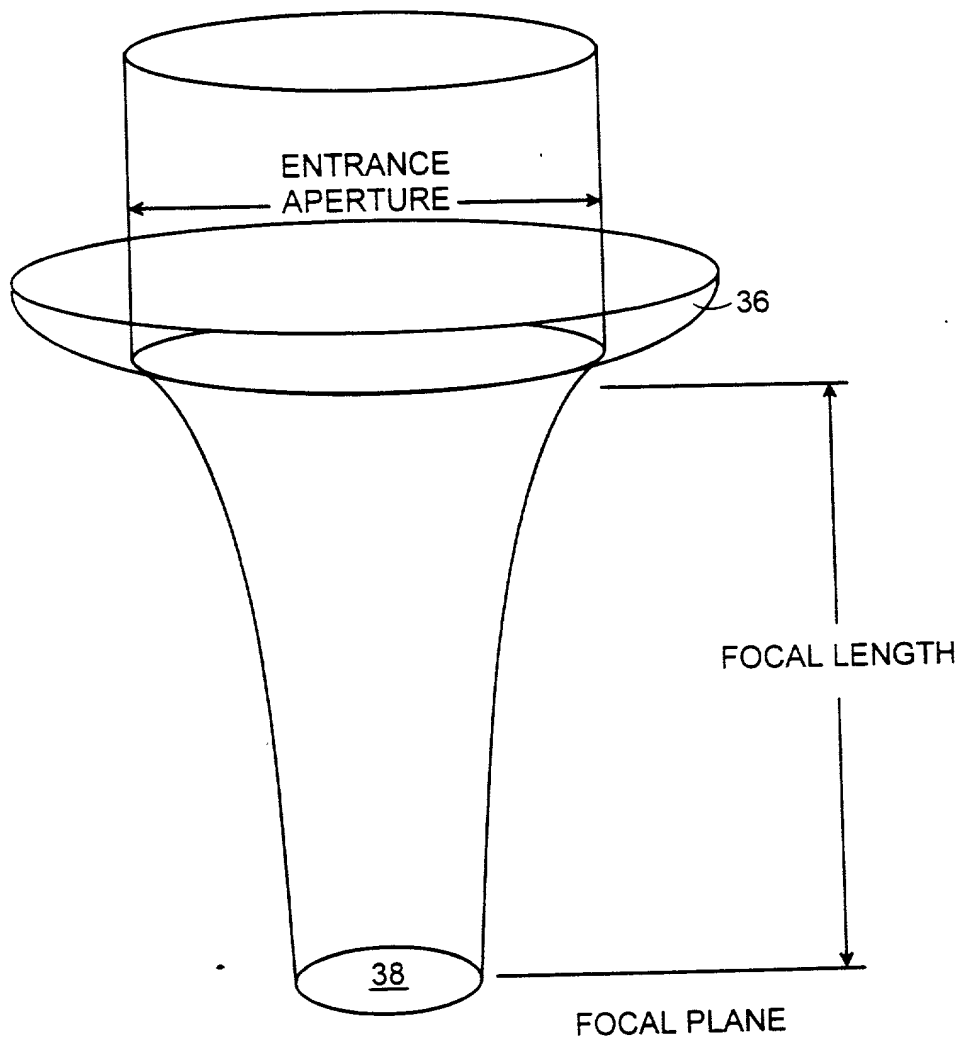


FIG. 3

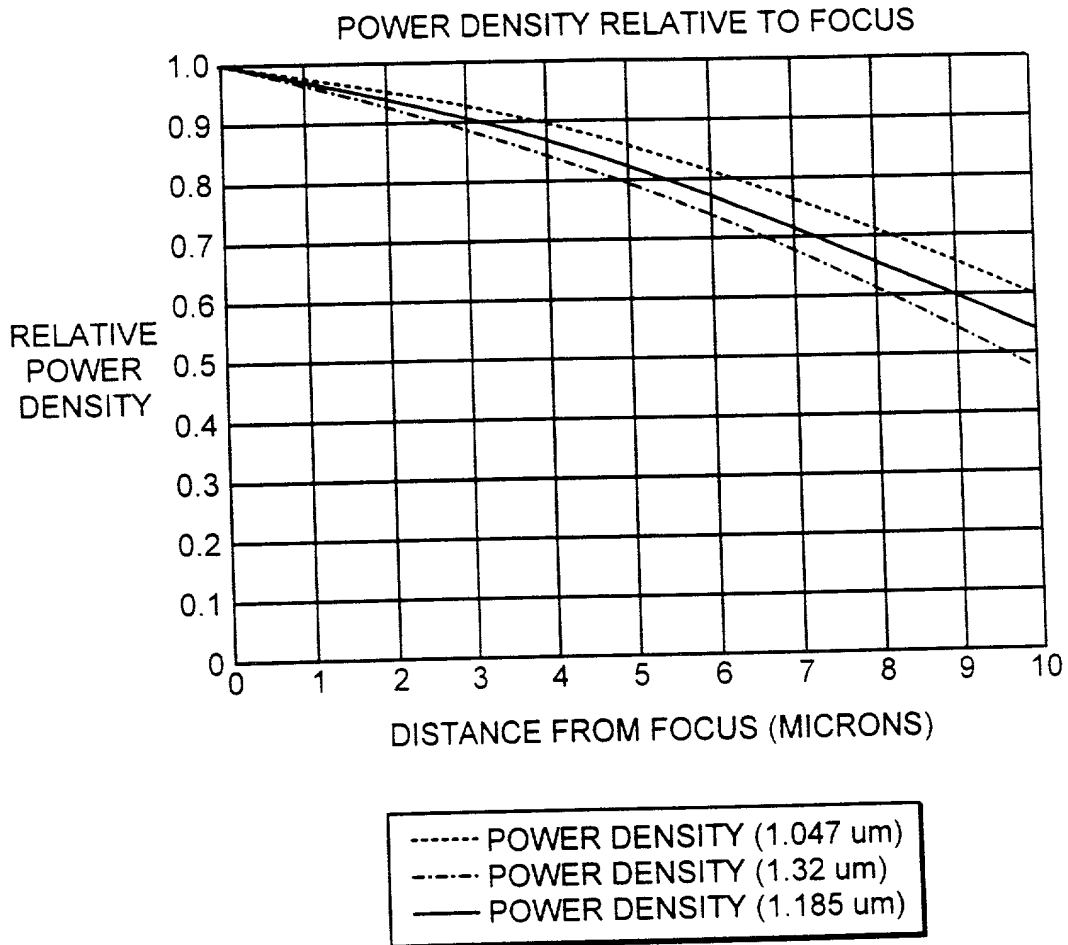


FIG. 4

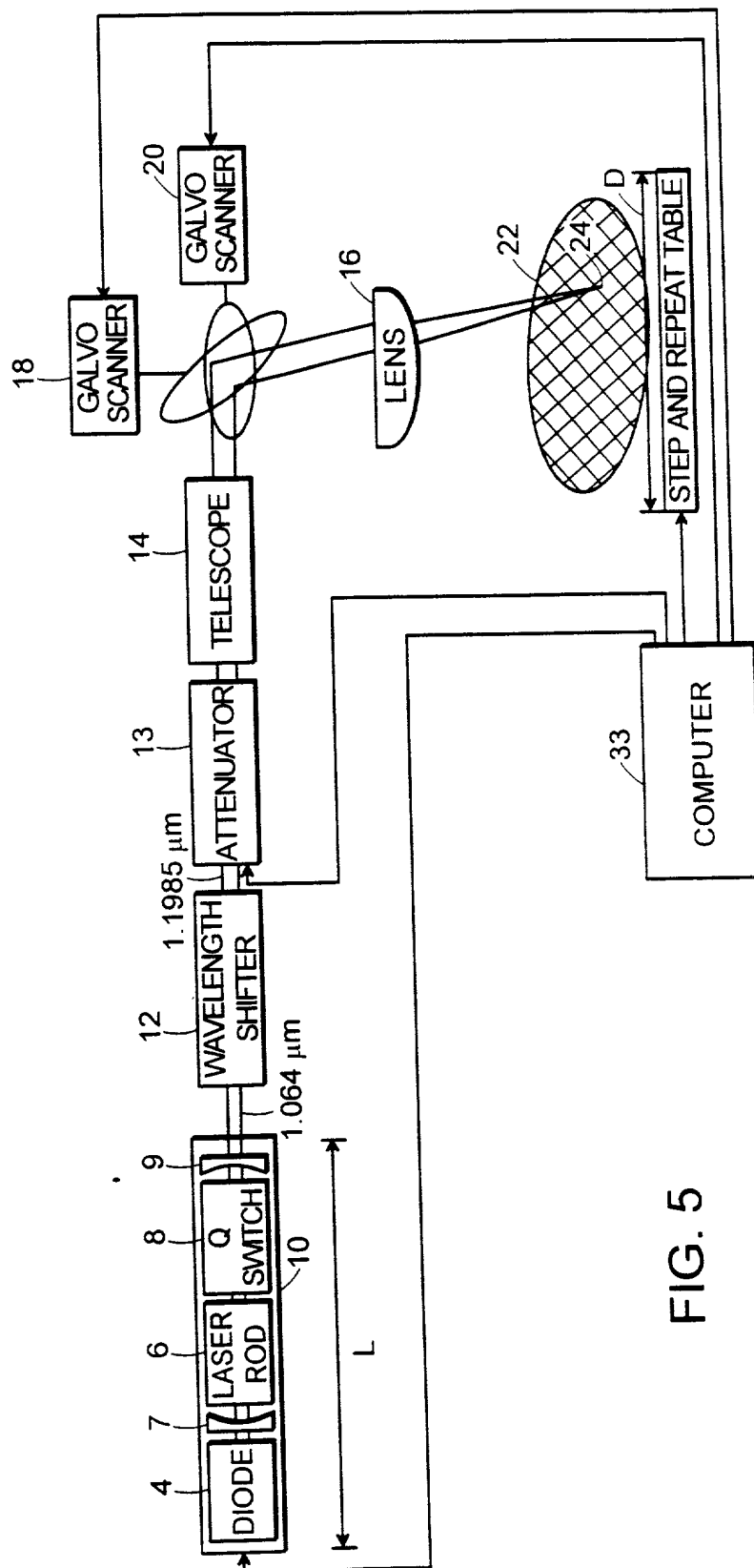


FIG. 5

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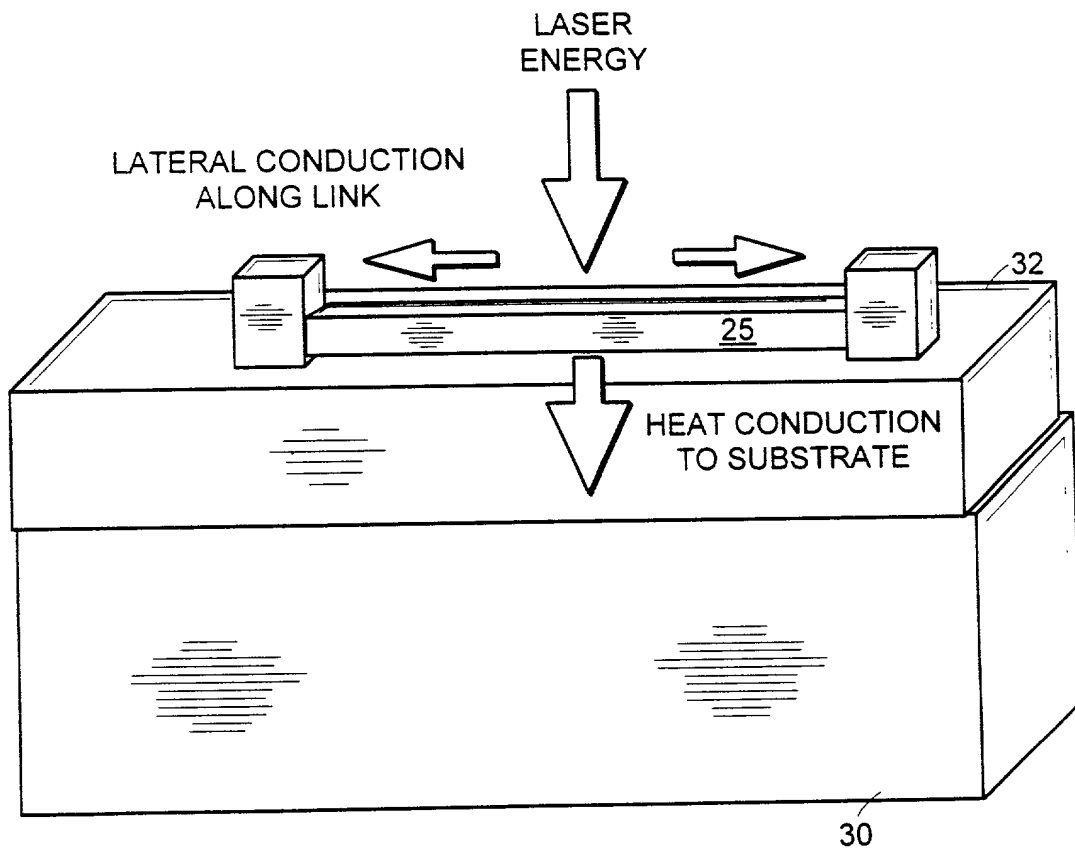


FIG. 6

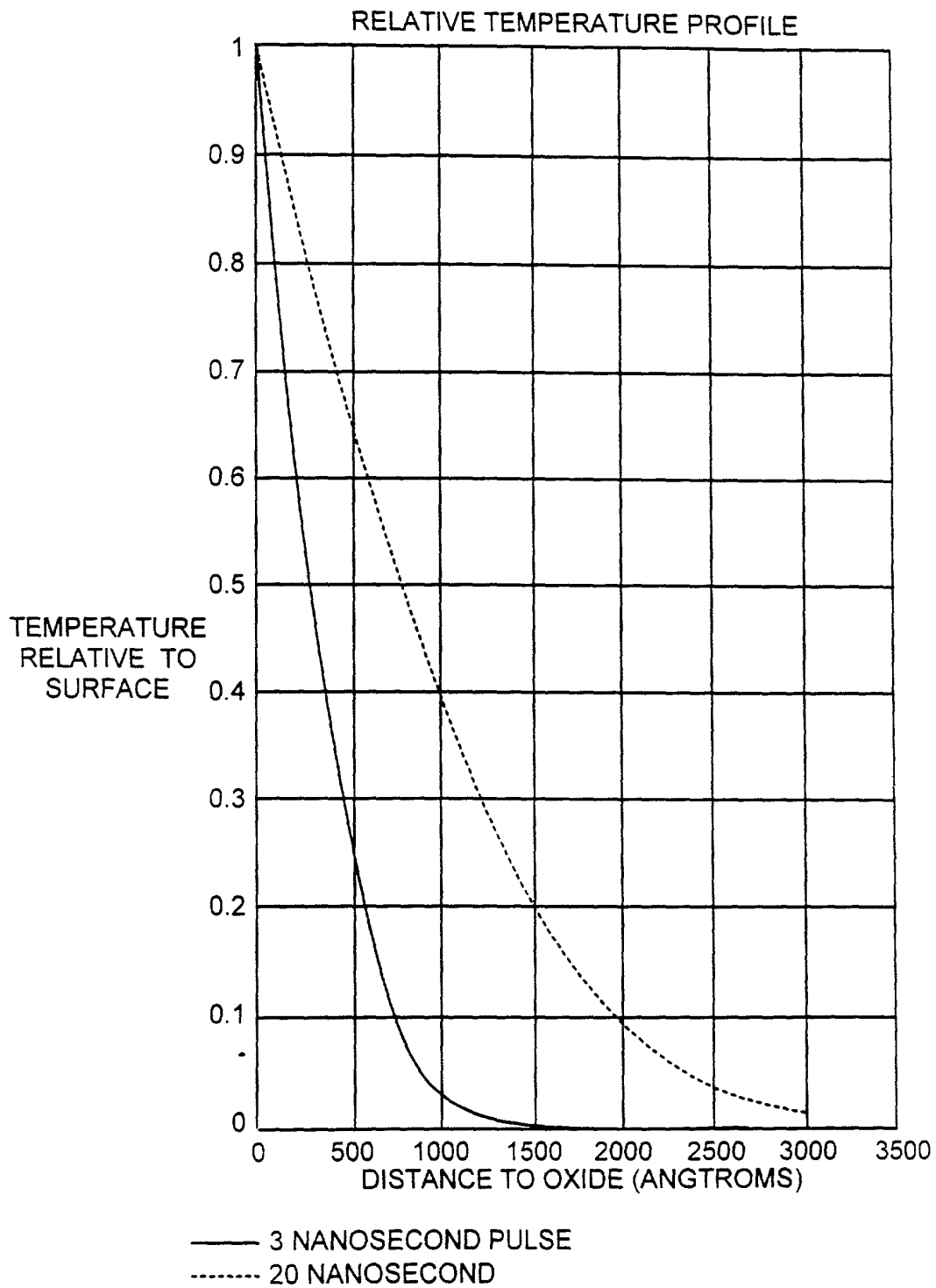


FIG. 7

Matter No.: 06457-007003  
Applicant(s): Donald V. Smart  
LASER PROCESSING

10035431-10035431

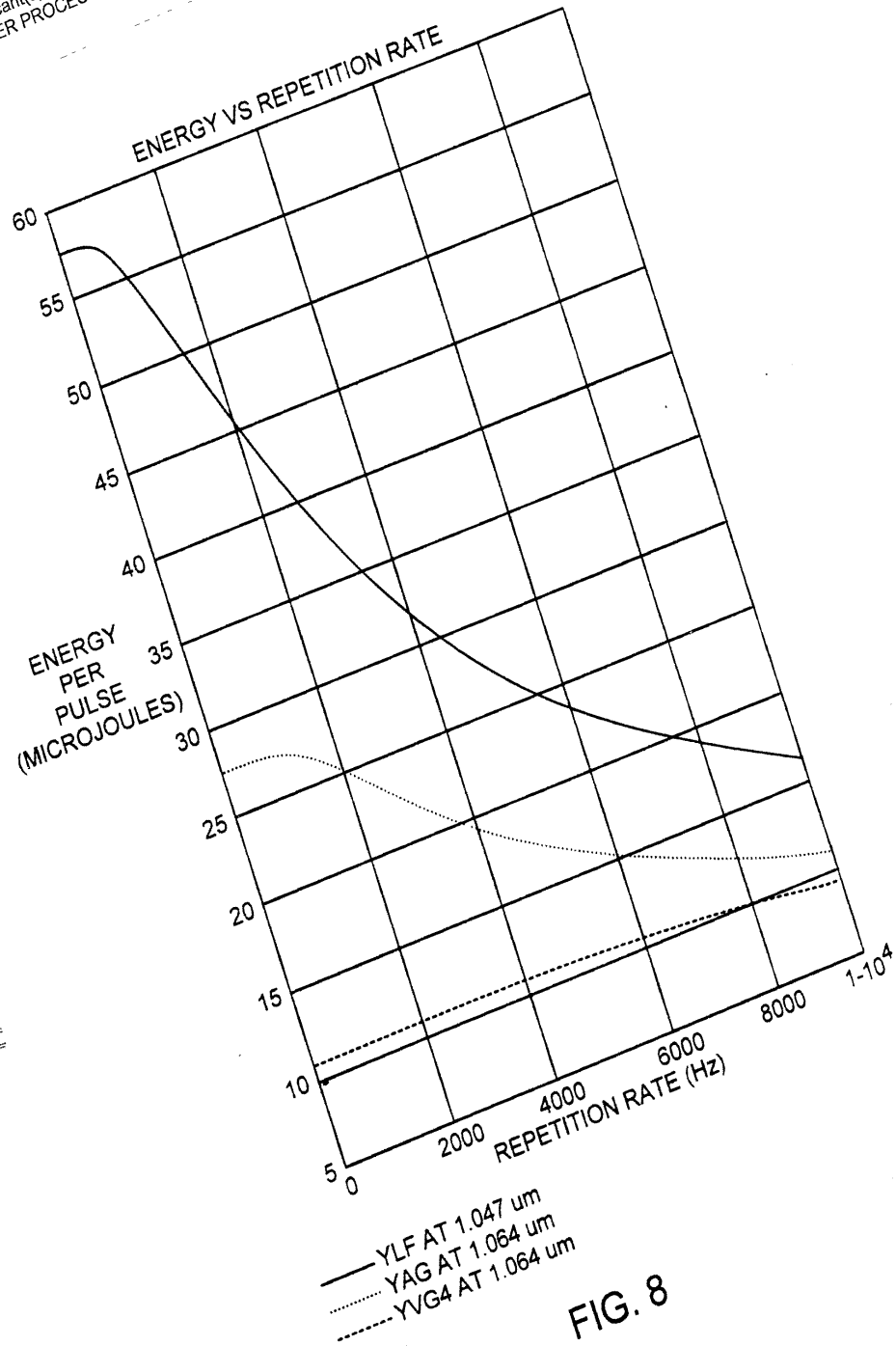


FIG. 8

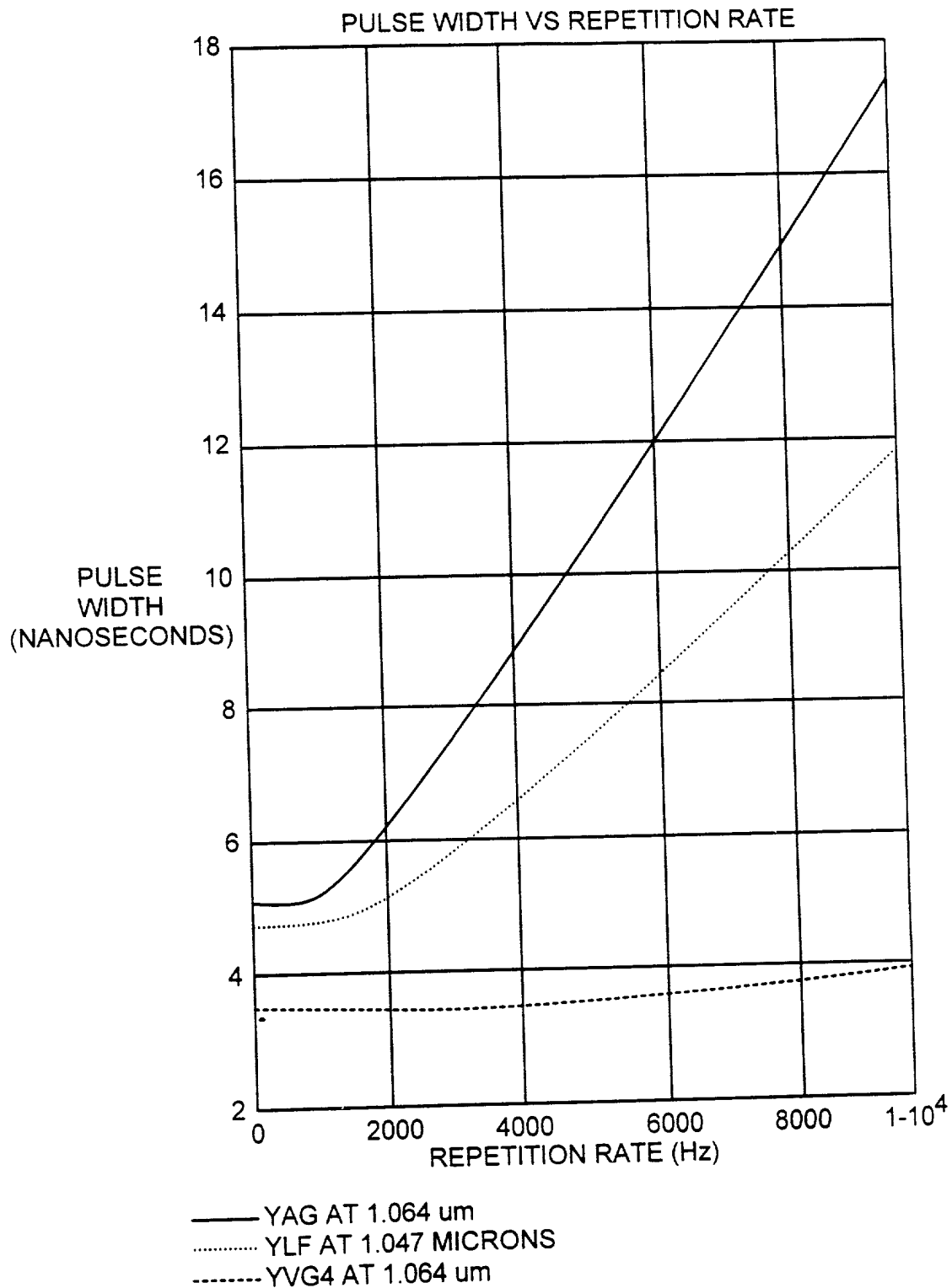


FIG. 9



| MATERIAL                         | STIMULATED CROSS SECTION | FLUORESCENT LIFETIME | ISAT                      | SINGLE PASS GAIN |
|----------------------------------|--------------------------|----------------------|---------------------------|------------------|
| YAG<br>(1.064 $\mu\text{m}$ )    | $6 \times 10^{-17}$      | 230 $\mu\text{SEC}$  | $14 \text{ WATTS/mm}^2$   | 21%              |
| YAG<br>(1.32 $\mu\text{m}$ )     | $1.25 \times 10^{-17}$   | 230 $\mu\text{SEC}$  | $52 \text{ WATTS/mm}^2$   | 6%               |
| YLF<br>(1.047 $\mu\text{m}$ )    | $4.0 \times 10^{-17}$    | 470 $\mu\text{SEC}$  | $10 \text{ WATTS/mm}^2$   | 29%              |
| YLF<br>1.32 $\mu\text{m}$        | $0.8 \times 10^{-17}$    | 470 $\mu\text{SEC}$  | $40 \text{ WATTS/mm}^2$   | 7%               |
| Nd:VO4<br>(1.064 $\mu\text{m}$ ) | $15.6 \times 10^{-17}$   | 90 $\mu\text{SEC}$   | $13.5 \text{ WATTS/mm}^2$ | 21%              |
| Nd:VO4<br>(1.34 $\mu\text{m}$ )  | $6 \times 10^{-17}$      | 90 $\mu\text{SEC}$   | $28 \text{ WATTS/mm}^2$   | 10%              |
|                                  |                          |                      |                           |                  |

FIG. 10

| MATERIAL / WAVELENGTH | OPTIMUM OUTPUT COUPLER |
|-----------------------|------------------------|
| YAG / 1.064 MICRONS   | 6%                     |
| YAG / 1.32 MICRONS    | 3%                     |
| YLF / 1.047 MICRONS   | 7.5%                   |
| YLF / 1.32 MICRONS    | 3%                     |
| YVO4 / 1.064 MICRONS  | 6%                     |
| YVO4 / 1.34 MICRONS   | 4%                     |

FIG. 11

| MATERIAL / WAVELENGTH | MINIMUM PULSE WIDTH |
|-----------------------|---------------------|
| YAG / 1.064 MICRONS   | 5.2 NANOSECONDS     |
| YAG / 1.32 MICRONS    | 14 NANOSECONDS      |
| YLF / 1.047 MICRONS   | 4.7 NANOSECONDS     |
| YLF / 1.32 MICRONS    | 14 NANOSECONDS      |
| YVO4 / 1.064 MICRONS  | 3.4 NANOSECONDS     |
| YVO4 / 1.34 MICRONS   | 10.3 NANOSECONDS    |

FIG. 12

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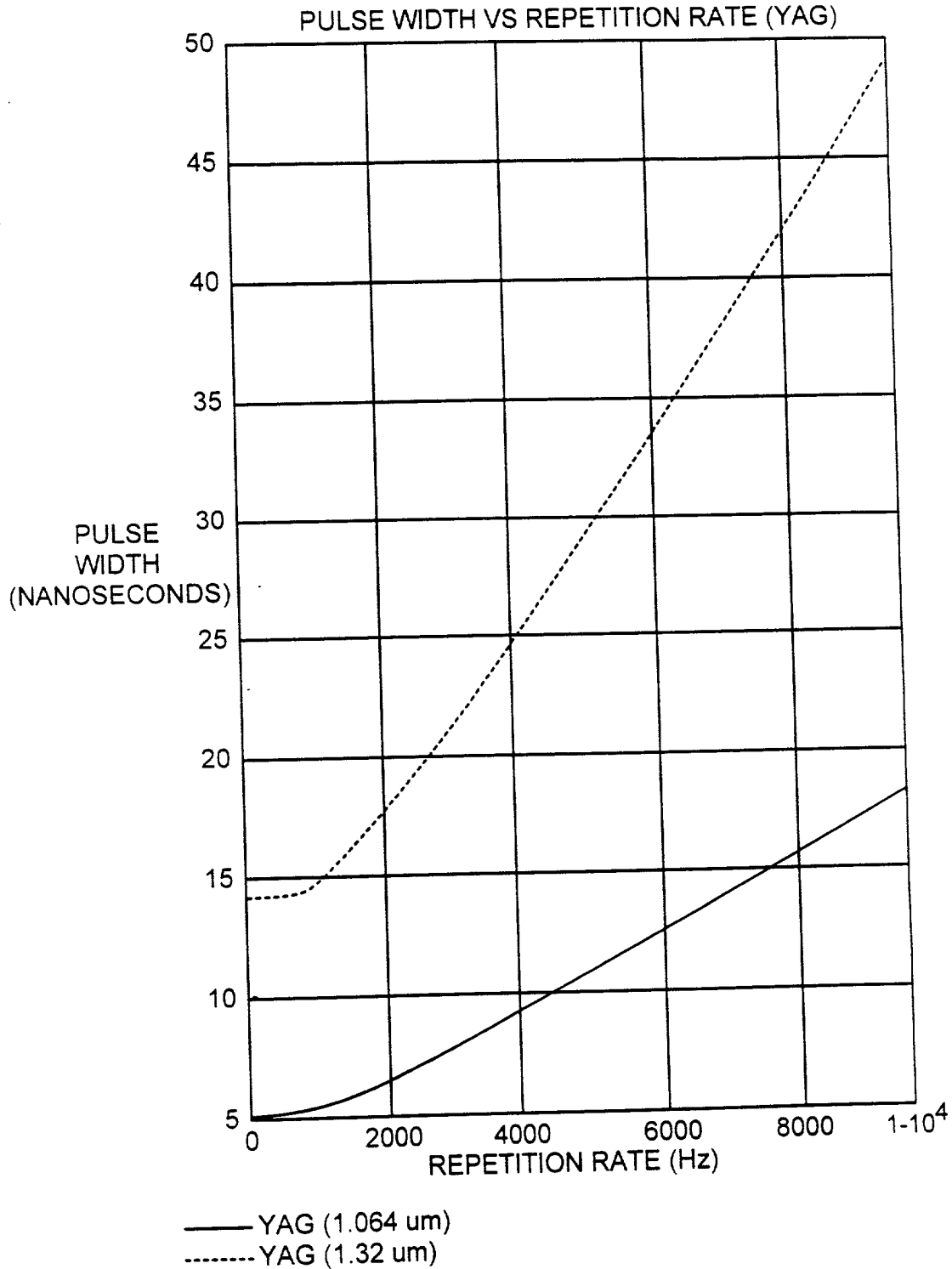


FIG. 13

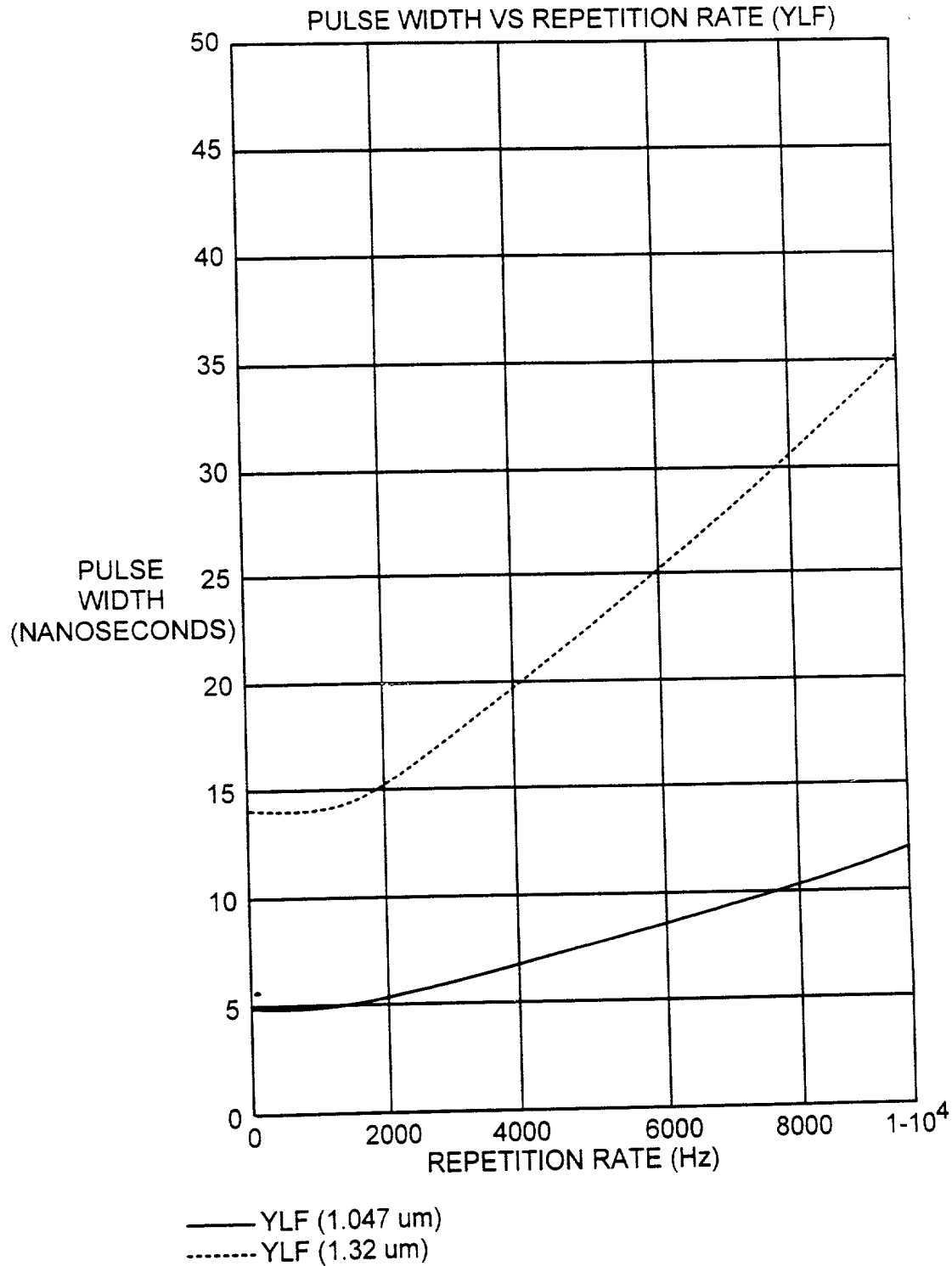


FIG. 14

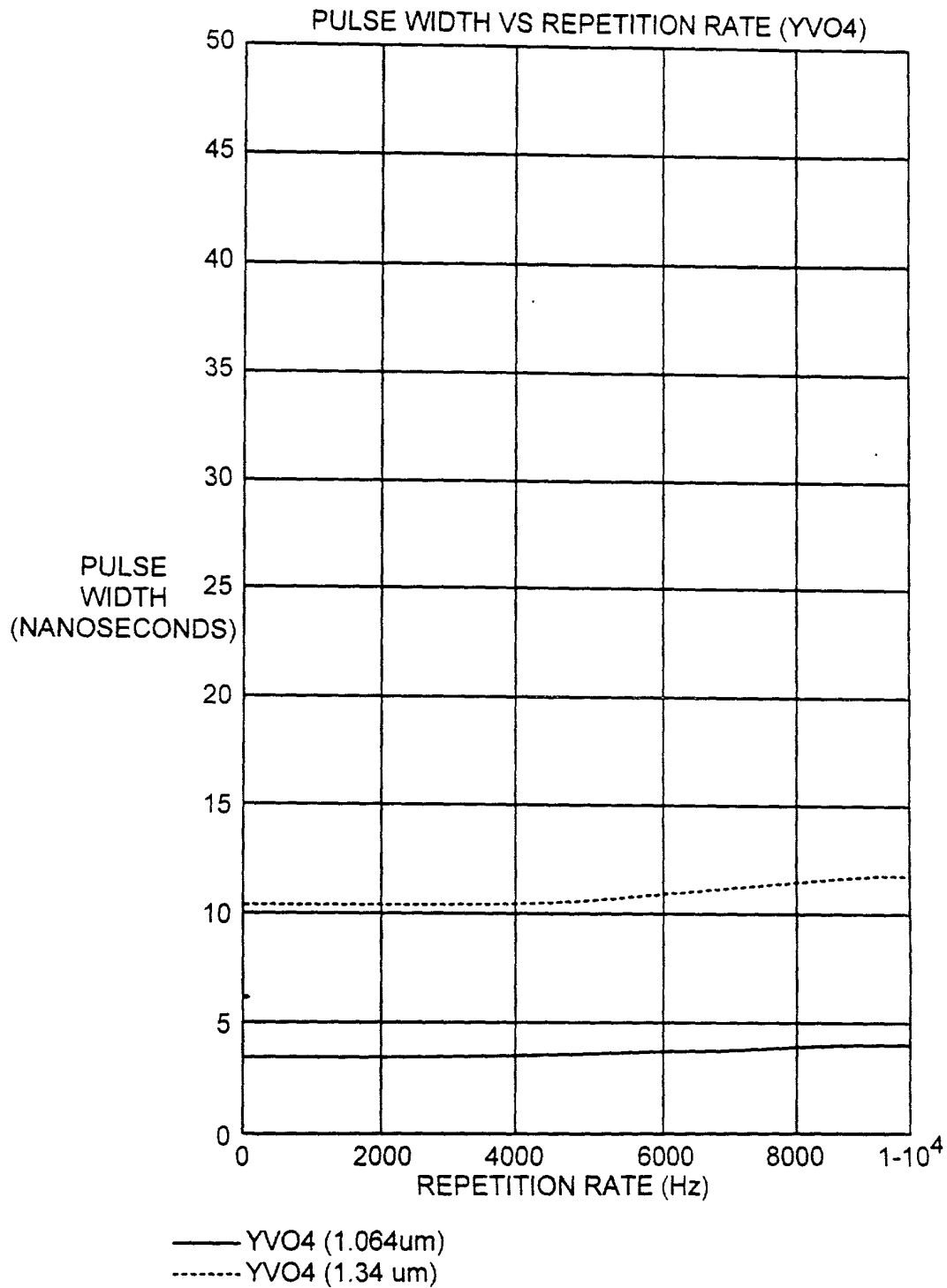


FIG. 15

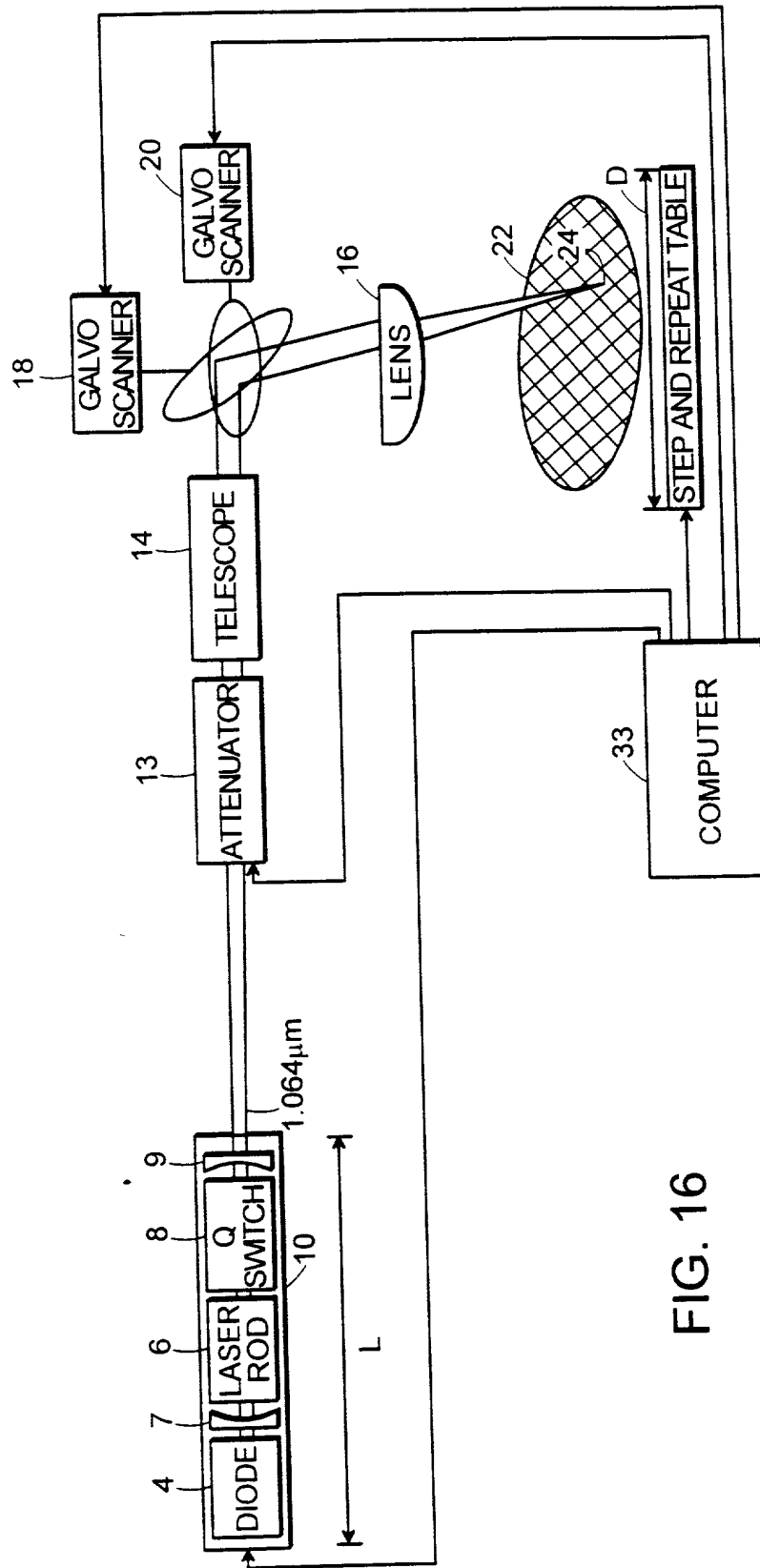


FIG. 16

2020 "T649E00"

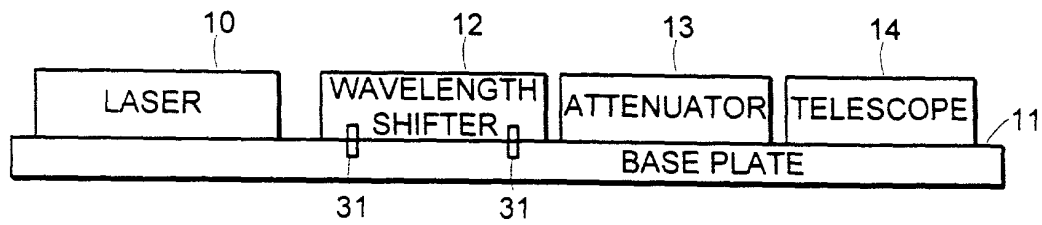


FIG. 17

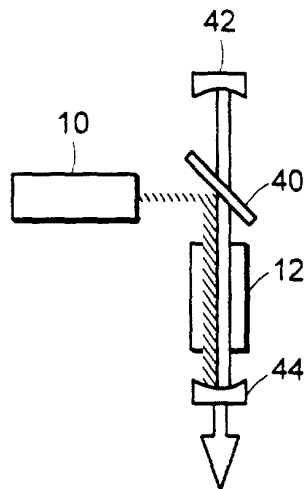


FIG. 18

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